

GEOLOGICAL SOCIETY.

March 11, 1857.—Colonel Portlock, R.E., President, in the Chair.

The following communications were read :—

1. "On the *Dichobune ovina*, from the Upper Eocene of the Isle of Wight." By Professor Owen, F.R.S., F.G.S.

This paper comprised a detailed description of the lower jaw and teeth of an Anoplotherioid quadruped (*Dichobune ovina*, Owen), of the size of the *Xiphodon gracilis*, Cuvier, and belonging to the family that includes *Dichobune* and *Xiphodon*. The dental formula, as shown by these teeth, and by the evidence on their crowns of the presence of the teeth of the upper jaw, is the typical one in diphyodont mammalia, viz. incis. $\frac{3-3}{3-3}$, can. $\frac{1-1}{1-1}$, premol. $\frac{4-4}{4-4}$, molars, $\frac{3-3}{3-3} = 44$. Professor Owen, having described the differences of the species under notice from the allied species *D. cervinum*, concluded with some remarks on the relations of the genera *Xiphodon* and *Dichobune*, as illustrated by their dental organs; and pointed out that the small anoplotherioid *Microtherium*, so much in some respects resembling the Chevrotains of Java, &c., but possessing persistent upper incisor teeth, probably differed also from the Ruminants in having a still more simplified structure of the stomach than is presented even by the Chevrotains (*Tragulus*, in which the third bag or psalterium is suppressed). Thus nearly all of the known eocene artiodactyle herbivores are separable from the Ruminants; and of the very few that remain, the dental evidences are as yet incomplete. Further, the gradations of dentition displayed by the extinct even-toed hoofed herbivores above referred to go far to establish the natural character of the group *Artiodactyla*.

2. "On two species of the fossil Mammalian genus *Plagiaulax* from Purbeck." By Dr. H. Falconer, F.R.S., F.G.S.

The author first alluded to the interesting relics of Mammalia (*Spalacotherium*) discovered some time since by Mr. W. R. Brodie, in the cliffs of Durdlestone Bay, near Swanage, and described by Professor Owen in the Journal of the Society (vol. x. p. 420, &c.). He then mentioned that Mr. Brodie had since made some important additions to this Purbeck fauna (including the *Triconodon*); and that Mr. S. H. Beckles had more recently obtained numerous additional evidences of mammalian animals (chiefly in the condition of lower jaws), besides various valuable reptilian remains in the same thin freshwater deposit which had yielded the fossil above referred to, and was still energetically occupied in the research. Among the specimens found by Mr. Beckles, are some portions of the lower jaws of two species of a mammalian genus, which is best represented among existing forms by the *Hypsiprymnus* or Kangaroo-rat. Dr. Falconer names the fossil genus *Plagiaulax*,—an abbreviation for "Plagiaulacodon," from *πλάγιος oblique*, and *αὐλαξ groove*; having reference to the diagonal grooving of the premolar teeth. With regard to these two species (*P. Becklesii* and *P. minor*), satisfactory evidence has been obtained as to the characters of the

lower jaw: the dental formula being—incisors, $\overline{1-1}$; canines, $\overline{0-0}$; premolars, $\overline{3-3}$ and $\overline{4-4}$; molars, $\overline{2-2}$; = 12 and 14 in all. The author then entered into a very full detailed description of the teeth and jaw in each of the two species. *Plagiaulax* characteristically differs from *Hypsiprymnus*,—1st, by the obliquity of the grooves on its premolars, the latter genus having the analogous teeth vertically grooved; 2ndly, by having only two true molars in each ramus of the jaw, instead of the usual four and occasional three, belonging to recent marsupials; 3rdly, by the considerable salient angle which the surfaces of the molar and premolar teeth form, instead of presenting a uniform level line; 4thly, by the very low relative position of the articular condyle. In *P. Becklesii* the two incisor teeth were large and robust, projecting upwards at a considerable angle, and the ramus of the jaw was remarkably short and deep. In *P. minor* the incisors were more slender, pointing less suddenly upwards, and the ramus was narrower and more curved. Dr. Falconer more especially infers the marsupial characters of the genus,—1st, from its Hypsiprymnoid resemblances in the grooved premolars and the relative size and position of the incisors; 2ndly, from the raised and inflected fold of the posterior and inner margin of the ramus; 3rdly, the form and characters of the symphyseal suture.

The author dwelt upon the peculiarly small number of the true molars in this genus,—presenting, as it does, a marked special suppression in these organs, and so offering the most *specialized* exception, amongst the marsupialia, fossil or recent, from the hitherto accepted rule of the older vertebrate forms presenting the least departure from the archetypal plan. He noticed also the interesting fact, that the crowns of the molars of *Plagiaulax* presented an unmistakable and close resemblance to those of the minute teeth of the *Microlestes* from the Triassic Bone-bed of Wurtemberg. Lastly, Dr. Falconer alluded to the fact of little lower jaws and small isolated bones forming so large a proportion of the mammalian remains from this thin Purbeck freshwater bed; whilst more or less perfect skeletons of aquatic or amphibious reptiles occurred in the same deposit; and he stated that not only had he observed that in the tanks in India the bones of small animals were uniformly wafted to the margin, but that M. Lartet had lately pointed out to him that in the rich Falunian deposit of Sansan, the skeletons of the large terrestrial animals were found in certain parts of the lacustrine beds, whilst in other parts, probably the old marginal deposits, the little bones of frogs, shrews, &c., could be collected by the handful. The author could not therefore but hope that further explorations, by opening out the stratum where it was originally deposited in deeper water, would yield even richer supplies of still larger mammals.

March 25, 1857.—Colonel Portlock, R.E., President, in the Chair.

The following communications were read:—

1. “On some Fish-remains from the neighbourhood of Ludlow.”
By Sir P. G. Egerton, Bart., M.P., F.G.S.

This paper comprised descriptions of some specimens of fossil

fishes discovered by Mr. Salwey in the Old Red Sandstone of Acton Beauchamp, and others by Mr. Lightbody in the upper bone-beds near Ludlow. From the first-named locality the author described a portion of a cephalic carapace, indicating a large and new species of *Cephalaspis* (*C. Salweyi*). Another new species of *Cephalaspis* (*C. Murchisoni*) was founded on two specimens obtained by Mr. Lightbody in a bed below the paper-mill on the river Teme at Ludlow; and a third new species (*C. ornatus*) was described from specimens from dark micaceous shales in the Hereford Railway Cutting at Ludlow. The same shales have afforded two specimens of a very small Cephalaspid of great interest. These are of the size of a four-penny piece, and have a general resemblance to *Cephalaspis*, except in the peculiarity of having behind the cephalic shield, and united to its posterior margin by a distinctly marked suture, a broad plate divided into lateral halves by a prolongation of the occipital crest. The author, having stated his reasons for regarding these specimens as adult and not embryonic individuals, gave this new Cephalaspid form the generic title *Auchenaspis* (on account of its *nuchal* plate), and described it under the specific name of *A. Salteri*. In conclusion, some other ichthyic remains, referable to *Plectrodus* and *Onchus*, were enumerated as having been collected by Mr. Lightbody in the railway-cutting and in the River-bed near Ludlow.

MISCELLANEOUS.

Observations on the Generation of the Arachnida.

By E. BLANCHARD.

SINCE Bonnet's experiments on the *Aphides*, naturalists have frequently paid attention to the faculty attributed to the females of certain articulated animals, of engendering without the aid of any male. Thus it has been asserted that some female spiders, kept in captivity and isolated, frequently deposited fertile eggs, and that these broods might succeed one another for several years. From this observation it appeared natural to conclude that in this case the males were not always of indispensable utility in the continuation of the species. In connexion with this, one of the results of my investigations into the anatomy and physiology of these animals appears to me to be worth recording.

It is very true that female spiders, when isolated in boxes, furnish eggs which are soon hatched, and this after a captivity of three or four years. Specimens of *Mygale* sent from Montpellier to Paris, and each contained in a separate box, have repeatedly furnished me with a great number of young ones. A *Segestria* (*S. perfida*, Walck.) which I have kept alive for more than three years, produced young the year before last, and again last year; hardly a month ago hundreds of the young were still living. Another form of the order *Araneida*, a *Filistata bicolor*, which has also lived for three years in my laboratory, constructed its nest some months ago, and soon afterwards gave birth to a considerable quantity of young individuals which are still alive.

Such facts as these certainly appear at first sight to allow us to